

Achmad Dary Alymahdy, 2018, **Pengaruh Antioksidan Alfa-Mangostin Terhadap Penurunan Kadar SGOT, SGPT, dan Struktur Histologi Hepar Mencit (*Mus musculus*) Diabetik**, Skripsi ini di bawah bimbingan Drs. H. Saikhu Akhmad Husen, M.Kes. dan Sugiharto, S.Si., M.Si. Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya

ABSTRAK

Penelitian hewan coba bertujuan untuk mengetahui pengaruh pemberian alfa mangostin terhadap penurunan kadar SGOT dan SGPT serta penurunan kerusakan sel hepar pada mencit diabetik. Penelitian ini menggunakan hewan coba mencit (*Mus musculus*) jantan galur Balb/c berjumlah 24 ekor yang berumur 3-4 bulan dikelompokkan menjadi 6 kelompok perlakuan, masing-masing kelompok terdiri atas 4 ekor hewan coba. Kelompok kontrol normal (KN) tidak dikondisikan diabetes sedangkan kelompok lain diberi STZ secara *low dosage* sehingga dalam kondisi DM tipe II. Kelompok kontrol diabetik (KD) dibiarkan dalam keadaan DM, kelompok kontrol metformin (KM) yang diberi perlakuan metformin, kelompok perlakuan 1 (P1) pemberian alfa mangostin 2 mg/kg BB, kelompok perlakuan (P2) pemberian alfa mangostin 4 mg/kg BB, dan kelompok perlakuan 3 (P3) pemberian alfa mangostin 8 mg/kg BB. Pemberian alfa mangostin dilakukan selama 14 hari secara per-oral. Hewan percobaan pada setiap kelompok dieutanasi untuk pengambilan darah intrakardiak, pembedahan dan pengambilan organ hepar untuk diamati histologi kerusakannya. Pengukuran kadar SGOT dan SGPT dilakukan secara spektrofotometri menggunakan alat bantu berupa kit Pentra C.200 reader dan pengamatan kerusakan jaringan hepar dilakukan di bawah mikroskop cahaya dengan perbesaran 40x10, pengamatan irisan hepar setiap individu dilakukan pada 3 lapang pandang setiap irisan. Hasil pengukuran kadar SGOT dianalisis dengan uji *Brown Forsythe* ($\alpha=0,05$) dan dilanjutkan uji *t independent sample* ($\alpha=0,05$). Hasil pengukuran kadar SGPT dianalisis dengan *One Way Anova* ($\alpha=0,05$) dan dilanjutkan dengan uji *Duncan* ($\alpha=0,05$). Hasil perhitungan persentase sel hepar yang normal, bengkak, dan degenerasi hidropik dianalisis dengan *One Way Anova* ($\alpha=0,05$) dan dilanjutkan uji *Duncan*, sementara hasil perhitungan sel yang nekrosis dianalisis dengan uji *Brown Forsythe* ($\alpha=0,05$) dan dilanjutkan uji *t independent sample* ($\alpha=0,05$). Hasil penelitian menunjukkan bahwa alfa mangostin berpengaruh menurunkan kadar SGOT, SGPT dan menurunkan jumlah kerusakan sel hepar. Pemberian alfa mangostin 2 mg/kg BB lebih efektif untuk menurunkan kadar SGOT dan menurunkan jumlah kerusakan sel hepar, sementara pemberian alfa mangostin 8 mg/kg BB lebih efektif untuk menurunkan kadar SGPT.

Kata kunci : antioksidan, alfa mangostin, streptozotocin, SGOT, SGPT, dan histologi hepar

Achmad Dary Alymahdy, 2018, **The Effect of Antioxidant Alfa-Mangostin Against Decreased Levels of SGOT, SGPT, and Histological Structure of Liver Cell of Mice (*Mus musculus*) Diabetic**, This study was under direction of Drs. H. Saikhu Akhmad Husen, M.Kes. and Sugiharto, S.Si., M.Si. Department of Biology, Faculty of Science and Technology, Airlangga University, Surabaya

ABSTRACT

This study aimed to determine the effect of antioxidant alpha mangostin on the levels of SGOT and SGPT and hepatic cell damages in diabetic mice. This study uses Balb/c male (*Mus musculus*) totaling 24 individuals aged 3-4 months grouped into 6 treatment groups, each group consisting of 4 mice. The normal control group (KN) was given no treatment, while the other group were administered streptozocin (STZ) 5 days consecutively by injection to create DM type II condition. The diabetic control group (KD) was and without any other treatments, metformin control group (KM) treated with metformin, treatment group 1 (P1) administered with alpha mangostin 2 mg / kg BW, treatment group (P2) was administered with alpha mangostin 4 mg / kg BW, and treatment group 3 (P3) was administered with alpha mangostin 8 mg / kg BW. The administration of alpha mangostin is performed for 14 days on a per-oral basis. The experimental animals in each group were put to death for intracardiac blood collection, surgery and liver organ removal for histological observation of the damage. Measurement of SGOT and SGPT levels were done from the blood collection by using a tool kit Pentra C.200 reader. The observation of hepatic tissue damages were done under a light microscope with magnification 40x10 and the observations of hepatic samples of each mice were performed on 3 fields of view of each slide. The result of SGOT level was analyzed by Brown Forsythe test ($\alpha = 0,05$) and continued by t test ($\alpha = 0,05$). The result of SGPT level was analyzed by One Way Anova ($\alpha = 0,05$) and continued by Duncan test ($\alpha = 0,05$). Normal, swelling, and hydropic degenerate liver cell were analyzed by One Way Anova ($\alpha = 0,05$) and then resumed by Duncan test, while necrosis cell count was analyzed by Brown Forsythe test ($\alpha = 0,05$) and carried on by t test ($\alpha = 0,05$). The results of the experiment show that alpha mangostin has effects on decreasing SGOT, SGPT and decrease the amount of liver cell damage. Administration of alpha mangostin 2 mg / kg BW is more effective to lower levels of SGOT and decrease the amount of liver cell damage, while giving alpha mangostin 8 mg / kg BW is more effective for lowering SGPT levels.

Keywords : antioxidant, alpha mangostin, streptozotocin, SGOT, SGPT, and liver histology